

### **Listing of the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

1-10. (Canceled)

11. (Currently amended) An ordered array of a plurality of immobilized oligonucleotides in the ordered array's x and y coordinates ~~[[with]]~~ wherein each of the plurality of immobilized oligonucleotides comprise two or more ~~multiple~~ copies of an unique sequence of interest extending in the array's z dimension, and wherein each of the plurality of immobilized oligonucleotides ~~[[copy]]~~ also has an identical a same generic oligonucleotide sequence that attaches the plurality of immobilized oligonucleotides to the x and y coordinates of a solid surface that is attached to the array's x and y ~~coordinates~~ and wherein each of the plurality of immobilized oligonucleotides has between the two or more copies of the unique sequence of interest ~~[[copy]]~~ also carries the unique sequence of interest repeated at least two times in the z dimension of the array and wherein between each of the unique sequence of interest there is at least one nucleic acid region that is complementary to at least a portion of the identical same generic oligonucleotide sequence attached to the array's x and y coordinates produced by:
- (a) providing: i) a solid support comprising a plurality of positions for oligonucleotides, said positions defined by x and y coordinates; ii) a plurality of same ~~identical~~ generic oligonucleotides, each oligonucleotide comprising a same sequence, wherein said plurality of same generic oligonucleotides comprise a 5' end which is attached to the solid support and a 3' end extending to the z dimension; and iii) a plurality of unique circular DNA templates, each circular DNA template comprising an unique sequence of interest and a nucleic acid region that is complementary to at least a portion ~~[[of]]~~ in said same sequence of said plurality of same generic oligonucleotides, wherein said unique sequence of interest being is different for each circular DNA template;
- (b) immobilizing one oligonucleotide from said plurality of ~~identical~~ same generic oligonucleotides in each of said positions defined by x and y coordinates on said solid support to create an ordered array comprising a plurality of ~~identical~~ immobilized same

generic oligonucleotides at every x and y coordinate on the solid surface, each of which is described by its position defined by its x and y coordinates;

(c) adding to each immobilized same generic oligonucleotide of said ordered array one of the [[a]] unique circular DNA templates ~~from said plurality of said circular DNA template comprising the unique sequence of interest~~ under conditions such that each of the immobilized same generic oligonucleotides hybridizes to one of the unique circular DNA templates to create a plurality of circular templates each hybridized to one of the immobilized same generic oligonucleotides at positions defined by their x and y coordinates, each circular template comprising a different unique sequence of interest; and

(d) extending each of said plurality of circular templates hybridized to the immobilized same generic oligonucleotides using a polymerase to create an ordered array of extended immobilized oligonucleotides, wherein each extended immobilized oligonucleotide has a position on the array defined by its x and y coordinates, and is extended in the z dimension, ~~a growing strand,~~ such that each extended immobilized oligonucleotide comprises at least two or more copies of said unique sequence of interest extending in the array's z dimension and wherein each of the plurality of immobilized oligonucleotides also has a same genetic oligonucleotide sequence at the 5' end that attaches the plurality of extended immobilized oligonucleotides to the x and y coordinates of the solid surface and wherein each of the of the plurality of immobilized oligonucleotides has between the two or more copies of the unique sequence of interest [[copy]] also carries the unique sequence of interest repeated at least two times in the z dimension of the array and wherein between each of the unique sequence of interest there is at least one nucleic acid region that is complementary to at least a portion of the identical same generic oligonucleotide sequence ~~by the circular DNA template having the unique sequence of interest, wherein said unique sequence of interest has a different sequence corresponding to an unique portion of a target sequence, whereby the end of the sequence extending in the z dimension of each extended immobilized oligonucleotide is unique.~~

12-22. (Canceled)

23. (Currently amended) An ordered array ~~[[of]]~~ with a plurality of immobilized oligonucleotides attached to ~~[[in]]~~ the ordered array's x and y coordinates ~~[[with]]~~ the immobilized oligonucleotides comprising two or more ~~multiple~~ copies of a sequence of interest extending in the array's z dimension, wherein each immobilized oligonucleotide ~~[[copy]]~~ has a different ~~unique~~ sequence attached to the array's x and y coordinates, and wherein each of the different sequences attached to the array's x and y coordinates is ~~[[being]]~~ complementary to the sequence of interest, and wherein at least two or more ~~at least~~ copies of the different ~~unique~~ sequence of interest are repeated along the z dimension of the array produced by:
- a) providing: i) a solid support comprising a plurality of positions for oligonucleotides, said positions defined by x and y coordinates; and ii) a plurality of oligonucleotides each having a different sequence that is complementary to an unique target sequence of interest; and iii) a plurality of unique circular DNA templates, each circular template comprising the unique target sequence of interest and a second nucleic acid region;  
~~pairs of corresponding oligonucleotides and circular DNA templates, wherein each circular DNA template comprises a sequence of interest, and at least two of said sequence of interest are different, and the corresponding oligonucleotide for each circular DNA template comprises a sequence, wherein said oligonucleotide comprises a 5' end which is attached to the solid support and a 3' end, and further wherein said oligonucleotide comprises a sequence complementary to a portion of the sequence of interest on the corresponding circular DNA template;~~
- b) immobilizing one oligonucleotide from said plurality of oligonucleotides in each of said positions defined by x and y coordinates on said solid support to create an ordered array comprising a plurality of immobilized oligonucleotides, ~~each of which is described by its position defined by its x and y coordinates;~~
- c) adding to each of the immobilized oligonucleotides of said ordered array ~~[[a]]~~ the corresponding unique circular DNA template that is complementary to the immobilized

oligonucleotide under conditions such that said immobilized oligonucleotide hybridizes to said ~~corresponding~~ circular DNA template to create an array with plurality of circular templates each of which is hybridized to its corresponding immobilized oligonucleotide at a position defined by its x and y coordinates; and

d) extending said hybridized immobilized oligonucleotides using a polymerase to create an ordered array of extended immobilized oligonucleotides, wherein each extended immobilized oligonucleotide has a position on the array defined by its x and y coordinates, and is extended in the z dimension such that each extended immobilized oligonucleotide comprises ~~at least two~~ or more copies of the unique sequence of interest extending ~~at the terminus in the direction of the z dimension, a growing strand, of the sequence of interest contained in said hybridized circular template by a circular DNA template having an unique sequence of interest,~~ wherein said unique sequence of interest has a different sequence corresponding to an unique portion of a target sequence, ~~whereby the 3' terminus extending in the direction of the z dimension of each extended immobilized oligonucleotide corresponds to the unique portion of the target.~~

24. (Previously presented) The ordered array of claim 11, wherein said ordered array has at least three copies of the unique sequence of interest extending in the Z dimension separated by the same generic nucleic acid sequence.
25. (Previously presented) The ordered array of claim 11, wherein said ordered array has at least 10 copies of the unique sequence of interest extending in the Z dimension separated by the same generic nucleic acid sequence.
26. (Previously presented) The ordered array of claim 11, wherein said ordered array has at least 50 copies of the unique sequence of interest extending in the Z dimension separated by the same generic nucleic acid sequence.
27. (Previously presented) The ordered array of claim 23, wherein said ordered array has at least three copies of the unique sequence of interest extending in the Z dimension separated by the second, identical nucleic acid sequence.

28. (Previously presented) The ordered array of claim 23, wherein said ordered array has at least 10 copies of the unique sequence of interest extending in the Z dimension separated by the second, identical nucleic acid sequence.
29. (Previously presented) The ordered array of claim 23, wherein said ordered array has at least 50 copies of the unique sequence of interest extending in the Z dimension separated by the second, identical nucleic acid sequence.
- 30.-33. (Canceled)
34. (Currently amended) The ordered array of claims 11 or 23, wherein at least two copies of a template nucleic acid or a fragment thereof corresponding to the unique sequence of interest are hybridized to at least one of the extended immobilized oligonucleotides comprising at least two copies of the unique sequence of interest along the z coordinate separated by the same generic nucleic acid sequence.
35. (Currently amended) The ordered array of claim 25, 26, 27, 28, or 29, wherein at least two copies of a template nucleic acid or a fragment thereof corresponding to the unique sequence of interest are hybridized to at least one of the extended immobilized oligonucleotides comprising the unique sequence of interest along the z coordinate.
- 36.-38 (Canceled)
39. (New) An ordered array of immobilized nucleic acid sequences attached to a solid support comprising a plurality of identical oligonucleotide sequences attached to the solid support wherein each of the identical oligonucleotide sequences is followed by at least two copies of a sequence that is complementary to a sequence of interest and wherein the sequence that is complementary to the sequence of interest is different for each of the immobilized nucleic acid sequence, and wherein each of the at least two copies of a sequence that is complementary to a sequence of interest is separated by a nucleic acid region that is at least partially complementary to the sequence of the plurality of identical oligonucleotide sequences.
40. (New) The ordered array of claim 39, wherein each sequence of interest corresponds to a unique portion of a target sequence.

41. (New) The ordered array of claim 39, wherein the unique portion of the target sequence is more than 20 nucleotides long.
42. (New) The ordered array of claim 39, wherein the nucleic acid region that is at least partially complementary to the sequence of the plurality of identical oligonucleotide sequences is longer than 6 nucleotides.
43. (New) The ordered array of claim 39, wherein each immobilized nucleic acid sequence comprises three or more copies of said sequence that is complementary to a sequence of interest.
44. (New) The ordered array of claim 39, wherein each immobilized nucleic acid sequence comprises ten or more copies of said sequence that is complementary to a sequence of interest.
45. (New) The ordered array of claim 39, wherein each immobilized nucleic acid sequence comprises more than fifty copies of said sequence that is complementary to a sequence of interest.
46. (New) An ordered array of immobilized nucleic acid sequences attached to a solid surface comprising a plurality of nucleic acid sequences attached to the solid surface, wherein each of the attached nucleic acid sequence is different and comprises at least two copies of a sequence that is complementary to a sequence of interest, wherein the sequence that is complementary to a sequence of interest is more than 13 nucleotides long.
47. (New) The ordered array of claim 46, wherein each immobilized nucleic acid sequence comprises three or more copies of said sequence that is complementary to a sequence of interest.
48. (New) The ordered array of claim 46, wherein each immobilized nucleic acid sequence comprises ten or more copies of said sequence that is complementary to a sequence of interest.
49. (New) The ordered array of claim 46, wherein each immobilized nucleic acid sequence comprises more than fifty copies of said sequence that is complementary to a sequence of interest.

50. (New) An ordered array of immobilized nucleic acids comprising of a solid surface, a plurality of first oligonucleotides attached to said solid surface and a second nucleic acid at least partially hybridized to each of said first oligonucleotides, wherein the second nucleic acid comprises a region that is at least partially complementary to the first oligonucleotide and two or more copies of a sequence of interest.
51. (New) The ordered array of claim 50, wherein the two or more copies of the sequence of interest are separated by a nucleic acid sequence forming a separating region between each sequence of interest.
52. (New) The ordered array of claim 50, wherein the plurality of first oligonucleotides are identical.
53. (New) The ordered array of claim 50, wherein the plurality of first oligonucleotides are different.
54. (New) The ordered array of claim 50, wherein each second nucleic acid comprises three or more copies of said sequence of interest.
55. (New) The ordered array of claim 50, wherein each second nucleic acid comprises ten or more copies of said sequence of interest.
56. (New) The ordered array of claim 50, wherein each second nucleic acid comprises more than fifty copies of said sequence of interest.